



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/805,833 | 03/14/2001 | Yoji Okazaki | 699866/0041 | 4447 |

7590 04/18/2002
STROOCK & STROOCK & LAVAN
180 Maiden Lane
New York, NY 10038

EXAMINER

NGUYEN, MICHELLE P

ART UNIT PAPER NUMBER

2851

DATE MAILED: 04/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/805,833

Applicant(s)

OKAZAKI, YOJI

Examiner

Michelle Nguyen

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informality: On Pg. 11, line 11, "blue laser light source 1b" should be --blue laser light source 1c--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,317,348 to Knize in view of U.S. Patent No. 5,796,771 to DenBaars et al.

With regard to claims 1-23, Knize discloses a color laser display (laser projector system) comprising:

red, green and blue laser light sources (red, green and blue solid-state laser means 30, 40 and 50, respectively) for emitting red, green and blue laser light, respectively (see Col. 3, lines 59-63, Fig. 1);

modulation means (red, green and blue light modulator means 20, 24 and 28) for modulating the red, green and blue laser light based on respective red, green and blue signals (see Col. 3, lines 35-8, Fig. 1);

a screen for displaying red, green and blue when irradiated with the red, green and blue laser light (see Fig. 1); and

projection means (scanner 5) for projecting the red, green and blue laser light onto the screen so that an image carrying the red, green and blue image signals is displayed on the screen (see Col. 3, lines 46-8, Fig. 1).

With respect to the laser means 40, 50, Knize teaches the option of employing a fiber laser unit (fiber laser 49, 58) comprising glass fiber doped with praseodymium. Knize does not teach expressly the fiber laser to comprise gallium nitride. However, DenBaars et al. disclose solid-state lasers which allow for the emission of the entire visible region of the wavelength spectrum (red, green, blue), thereby rendering these lasers analogous to the laser means of Knize (see Col. 2, lines 24-8). With respect to the fiber laser of Knize, DenBaars et al. teach a solid-state laser having an insulating crystal in which a rare earth metal such as praseodymium is doped to employ gallium nitride as the pump source for exciting to a higher energy level electrons in the outer shell of the metal dopant (see Col. 2, lines 20-6, Col. 3, line 66 to Col. 4, line 16). Here it is understood that insulating crystals include the glass fiber of Knize. DenBaars et al. also teach a solid-state laser having a crystal doped with praseodymium to employ gallium nitride for exciting the laser crystal (see Col. 2, lines 24-6, Col. 3, lines 3-6, 63-4, Col. 4, lines 6-8). Other lasers disclosed by DenBaars et al. include various surface-emitting semiconductor lasers which employ gallium nitride as the pump source. In disclosing several solid-state lasers, DenBaars et al. discuss various ways of not only doping an active medium but also engineering semiconductor compounds including

Art Unit: 2851

varying combinations of indium, gallium, aluminum, phosphorous, nitrogen and/or arsenic for producing selected band gap energies corresponding to one or more color light (red, green or blue) to be emitted (see Col. 3, lines 14-46). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute into the laser projector system of Knize any one of the lasers of DenBaars et al. as discussed above for one or more of the laser means for producing red, green and/or blue light.

4. Claims 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knize in view of DenBaars et al. as applied to claim 15 above, and further in view of U.S. Patent No. 5,727,016 to Paxton.

With regard to claims 24-28, Paxton discloses a semiconductor laser element for use with a surface emitting semiconductor laser (see Col. 1, lines 21-2, Col. 2, lines 4-8). Paxton teaches the output from surface emitting semiconductor lasers to be spatially coherent if the width of the lasing region is limited to about 5 microns, but also teaches that increasing the width to at least 50 microns allows for high output power (see Col. 1, lines 27-32, Col. 3, lines 29-35). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to fabricate the semiconductor laser element of the combined invention as discussed above with respect to claims 1-23 such that the laser element has a width of 5 microns or more, depending on the desired output of the laser.

Art Unit: 2851

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patent is provided to further show the state of the art with respect to image projector systems having lasers: U.S. Patent No. 5,920,361 to Gibeau et al.


The following patents are provided to further show the state of the art with respect to nitride-based semiconductor laser elements: U.S. Patent No. 6,015,979 to Sugiura et al., U.S. Patent No. 6,277,664 to Lozykowski et al., and U.S. Patent No. 6,255,669 to Birkhahn et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Nguyen whose telephone number is 703-305-2771. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 703-308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7723 for regular communications and 703-305-7723 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4900.

mpn
April 16, 2002


RUSSELL ADAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800